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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,946	01/15/2002	Carl E. Cupit	CUPIT001	2439

7590 04/07/2006

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EXAMINER	
WACHTEL, ALEXIS A	
ART UNIT	**PAPER NUMBER**
1764	

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/045,946	CUPIT, CARL E.	
	Examiner	Art Unit	
	Alexis Wachtel	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *11 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Response to Appeal Brief

1. In view of the Appeal Brief filed 1-11-06 is REOPENED. Claims 1-13 are rejected as set forth below. To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1 .11 1 (if this Office action is non-final) or a reply under 37 CFR 1 .1 13 (if this Office action is final or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1 .130, 1 .131 or 1.132) or other evidence are permitted. See 37 CFR 1 .193(b)(2). Additionally, ALL of Applicant's arguments are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. In particular, the instant claim does not delineate the operational steps needed to carryout the claimed method. What steps are taken to account for changing densities of foamed coke?

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,176,052 to Bruce et al and US 5,099,124 to Benson.

With respect to system claims 1-3, 10-13, recitations of intended use are only given weight insofar as their effect on the structure of the system. The system must merely be capable of carrying out the claimed recitations of intended use to satisfy the claim.

With respect to claim 1, Bruce et al teaches a level system for detecting a foam level in a delayed coking drum comprising:

(a) a plurality of radiation detectors mounted length wise along the height of the coke drum (Col 9, lines 9-19);

(b) a radiation source mounted on the coke drum opposite said radiation detectors (Col 8, lines 31-40);

Bruce et al do not teach placing a plurality of linear radiation detectors along the height of said drum. Benson et al is directed to level detection means and teaches the use of radiation source tube (20) the can be placed opposite of a linear radiation detector array (22) (Col 6, lines 9-36). The benefits of using multiple linear detectors for the measurement of liquid levels is discussed by Benson which provides greater precision and accuracy (Col 5, lines 5-27). In view of this teaching it would have been obvious to one of ordinary skill at the time of the invention to have replaced the level detection scheme taught by Bruce et al with the level detection system taught by

Benson. One of ordinary skill would have been motivated by the desire to provide more accurate level detection means inside a coke drum. The linear radiation detectors taught in accordance with the teachings of Bruce et al and Benson are capable of being calibrated to read one hundred percent level when no radiation is detected.

With respect to claim 2, As illustrated in Benson (22), each of said radiation detectors is spaced apart a nominal distance along the height of said drum .

With respect to claim 3, As illustrated in Benson (22) each of said radiation detectors is placed end to end along the height of said drum.

With respect to claim 4, Bruce et al teach a method of detecting a foam level in a delayed coking drum comprising: (a) placing a plurality of radiation detectors along the height of said drum (Col 9, lines 9-19); (b) placing a radiation source on said drum opposite said radiation detectors (Col 8, lines 31-40);

Bruce et al do not teach placing a plurality of linear radiation detectors along the height of said drum. Benson et al is directed to level detection means and teaches the use of radiation source tube (20) the can be placed opposite of a linear radiation detector array (22) (Col 6, lines 9-36). The benefits of using multiple linear detectors for the measurement of liquid levels is discussed by Benson which provides greater precision and accuracy (Col 5, lines 5-27). In view of this teaching it would have been obvious to one of ordinary skill at the time of the invention to have replaced the level detection scheme taught by Bruce et al with the level detection system taught by Benson. One of ordinary skill would have been motivated by the desire to provide more accurate level detection means inside a coke drum.

With respect to claim 4, the combined teachings of Bruce et al and Benson teach summing all of the resulting products to give a level (Col 5, lines 5-27).

With respect to claim 4, Bruce et al and Benson are silent as to: (c) calibrating each of said radiation detectors to read zero per cent level at the radiation count of the detector when only hydrocarbon vapors are present in the drum adjacent to the detectors; (d) calibrating the output each of said radiation detectors to read one hundred per cent when no radiation is detected. Benson teaches that as a liquid rises, the number of backscattered neutrons detected by detector tube (22) increases proportionately (Col 4, lines 33-39). Put another, this can be interpreted as calibrating the detector tubes to read as zero backscattered neutrons if a the liquid level does not reach a particular portion of a detector tube. Accordingly, a maximum backscattered neutron reading would correlate with a 100% reading such that a particular portion of the detector tube would indicate that a particular liquid level has been reached. This calibrating scheme is opposite of what is claimed. However, one of ordinary skill would have recognized that the detector of Bruce may be equivalently calibrated in terms of absorbance of neutrons. Examiner especially wishes to note Applicant's claim limitations referenced herein are analogous to classifying a glass of water as being either half empty or half full. In view of this teaching, calibrating the radiation detectors as claimed would have been an obvious matter of routine engineering design choice and would have been obvious at the time of the invention.

With respect to claim 4, Bruce et al and Benson do not teach (e) detecting radiation as a percentage of the height of each radiation detector as radiation is blocked

by the foam level rising in the coke drum;

(f) multiplying the percentage reading for each detector by the fraction of height each detector is in relation to the total height of all the detectors to give a product. However, the instant limitations appear to constitute a normalization operation of the readings which would be required for the purpose of proper measured data characterization. Accordingly, it would have been obvious to one of ordinary skill to have employed the claimed steps motivated by the desire to properly characterize measured data.

With respects to claims 5,7 and 8, the instant claims do not further limit the structure of parent apparatus claim 3 on which said instant claims depend.

With respect to claim 6, The method according to claim 4 wherein the output of all except the topmost of the radiation detectors are recalibrated after feed is started to read 100 per cent when the radiation count of the next higher detector begins to fall and output of the topmost detector output is recalibrated based upon a linear interpolation of the lower recalibrations.

With respect to claim 10, the radiation detector is capable of being calibrated at zero when the coke drum is filled with hydrocarbon vapors.

With respect to claim 11, each successive radiation detector from the bottom is capable of being recalibrated to 100% when it begins to detect a level using the radiation count of the next lower radiation detector at that time.

With respect to claim 12, the radiation detector is capable of being calibrated at zero when the coke drum is filled with hydrocarbon vapors.

With respect to claim 13, each successive radiation detector from the bottom is capable of being recalibrated to 100% when it begins to detect a level using the radiation count of the next lower radiation detector at that time.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Wachtel whose telephone number is 571-272-1455. The examiner can normally be reached on 10:30am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Glenn Caldarola, can be reached at (571)-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Glenn Caldarola
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